

## **REMARKS**

Claims 1 through 28 were presented for examination and rejected.

The applicants respectfully have filed a terminal disclaimer to overcome the Double-Patenting Rejection, but traverse the 102 and 103 rejections. For this reason, the applicants respectfully request reconsideration in light of the following comments.

### **Double Patenting Rejection of Claims 1, 10, and 20**

Claims 1, 10, and 20 were rejected on the ground of non-statutory obviousness-type double patenting in light of claim 8 of U.S. Patent 7,116,987. The applicants have filed the enclosed terminal disclaimer, and, therefore, respectfully submit that the rejection is overcome.

### **35 U.S.C. 102 Rejection of Claims 1-4, 10-13, 15-16, 20-23, and 25-26**

Claims 1-4, 10-13, 15-16, 20-23, and 25-26 were rejected under 35 U.S.C. 102(e) as being anticipated by B.H. Chen et al., U.S. Patent 6,658,258 (hereinafter "Chen"). The applicants respectfully traverse the rejection.

Claim 1 recites:

**1.** A method comprising:  
***deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on a transmit strength of a second signal,  $T_U$ , that is transmitted by said wireless terminal;*** and  
estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .  
**(emphasis supplied)**

Nowhere does Chen teach or suggest, alone or in combination with the other references, what claim 1 recites – namely **deducing a signal strength** of a signal. The Office action, however, cites five (5) portions of Chen to support its contention that the reference does, in fact, teach this one limitation. The applicants respectfully disagree.

On the contrary, a careful reading of Chen overall and these five portions in particular proves that Chen does not teach or suggest what is claimed.

**I. First Cited Portion of Chen**

(the Abstract)

The Abstract of Chen recites:

A method and apparatus for estimating the location of a mobile terminal. The method estimates the locations by: a) using at least one forward-link geo-location technique without using any reverse-link geo-location techniques, this being performed when there are enough base stations visible to the mobile terminal to be able to use the forward-link geo-location technique without using any reverse-link geo-location techniques to estimate the location, and b) using at least one reverse-link geo-location technique when there are not enough base stations visible to the mobile terminal to be able to use the forward-link geo-location technique without also concurrently using any reverse-link geo-location techniques to estimate the location. The forward-link geo-location techniques can be used either alone or in combination with each other, and include such known geo-location techniques as a time-difference-of-arrival technique and angle-difference-of-arrival technique. Illustratively, when the predetermined number, for example three, base stations are visible to the mobile terminal, the location of the mobile terminal is estimated using time-difference-of-arrival. When fewer than three base stations are visible to the mobile terminal, the location of the mobile terminal is estimated using round trip delay. Estimating the location of a mobile terminal by using only forward-link geo-location techniques when there are enough base stations visible to the mobile terminals to be able to use forward-link geo-location techniques, produces a more accurate estimation of the mobile terminal's location. It also allows wireless assisted GPS (AGPS) systems to more quickly estimate a more precise location of the mobile terminal.

The applicants respectfully submit that nowhere in this text is the idea of deducing a signal strength of one signal. Period. And for this reason, the citation of this portion of Chen is erroneous.

**II. Second Cited Portion of Chen**

(Col. 2, lines 14-25)

Column 2, lines 14-25 of Chen recites:

The present inventors have realized that further improvement in estimating the location of a mobile terminal is possible. Some geo-location techniques, referred to herein as forward-link geo-location techniques, use only information obtained from one or more forward-link signals--the signals that are transmitted from the base station to the mobile terminal. Other geo-location techniques, referred to herein as reverse-link geo-location techniques, use information obtained from reverse-link signals--the signals that are transmitted from the mobile terminal to the base station--either alone or in combination with information obtained from the forward-link signals.

Chen Column 2, lines 14-15.

The applicants respectfully submit that this portion of Chen also fails to teach what the Office claims it teaches. In fact, there is no teaching or suggesting of the deduction of a signal strength.

### **III. Third Cited Portion of Chen**

(Col. 7, line 34 to Col. 8, line 35)

Column 7, line 34 to Column 8, line 35 of Chen recites:

The present inventors have realized that further improvement in estimating the location of a mobile terminal is possible. Some geo-location techniques, referred to herein as forward-link geo-location techniques, use information obtained only from the forward-link signals--the signals that are transmitted from the base station to the mobile terminal. Other geo-location techniques, referred to herein as reverse-link geo-location techniques, use information obtained from the reverse-link signals--the signals that are transmitted from the mobile terminal to the base station--either alone or in combination with information obtained from the forward-link signals. The present invention takes advantage of the present inventors' recognition that when there are enough base stations visible to the mobile terminal to be able to use the geo-location techniques that use the information obtained from the forward-link signals, then the reverse-link signals are typically weak.

This phenomenon is explained in more detail with reference to FIG. 1. When a call is set up in wireless communication system 100, a mobile terminal communicates with the base station from which it receives the strongest pilot signal. When a mobile terminal is close to a base station, such as mobile terminal 120 to base station 116, mobile terminal 120 receives a fairly strong pilot signal from base station 116 and very weak, if any, pilot signals from any other base stations, thus, seeing only base station 116. When only one

base station is visible to the mobile terminal only reverse-link geo-location techniques can be used to determine the location of the mobile terminal.

As the mobile terminal moves further from the base station, such as mobile terminal 140, it is now able to detect pilot signals from three base stations, 112, 114, and 116, so mobile terminal 140 sees three base stations. Typically, forward-link geo-location techniques can be used, without any additional information provided by reverse-link geo-location system, to determine the location of the mobile terminal when at least three base stations are visible to the mobile terminal.

When mobile terminal 140 is far from any base station it has to send the signals to the base stations at a significantly higher power level for the signal to arrive at the base station at an acceptable level of signal performance. Typically, the wireless communication system directs the power amplifier in the mobile terminal to maintain a fairly low power output in order to reduce the interference and/or noise to other mobile terminals. Therefore, the power amplifier may only provide enough power for the mobile terminal to transmit signals to the base stations so that they are received at the base station at, or just below the lower levels of acceptable signal performance, meaning that the reverse-link signal is weak. This is even more of a problem when there is a significant amount of interference and/or noise and mobile terminal 140 needs to increase the power of the reverse-link signal to compensate for both 1) the distance from the base stations and 2) the interference and/or noise.

As the signal quality on the reverse-link decreases, i.e. the reverse-link becomes weaker, there are more errors in the signal on the reverse-link and it becomes more difficult for the base station to accurately estimate the approximate location.

**Typically, the power amplifier in the base station can provide significantly more power than the power amplifier in the mobile terminal.** Furthermore, in CDMA wireless communication systems the forward-link signals are designed to be orthogonal to one another. **Therefore, when the mobile terminal is far from the base station the strength of the forward-link signals is typically larger than the strength of the reverse-link signals.**

Chen Column 7, line 34 to Column 8, line 35.

**(emphasis supplied)**

The last paragraph of this portion teaches that the amplifier in the base station can provide more power than the amplifier in the mobile, and, therefore, when the mobile is far

from the base station, the received signal strength of the forward- or down-link signal is “typically” larger than the received signal strength of the reverse- or up-link signal. Regardless of the truth or generality of this statement, it is not deduction, nor is it the deduction of a signal strength. It is, at most, a **loose correlation** between forward-link signal strength and reverse-link signal strength **in some circumstances**. In other circumstances, in some circumstances it isn’t true at all. This does not rise to the level of “deduction,” which the American Heritage Dictionary defines as:

**de-duc-tion (dĭ-dŭkshən) n.** The process of reasoning in which a conclusion follows necessarily from the stated premises; inference by reasoning from the general to the specific.

Nowhere does Chen teach or suggest the process of deduction.

#### **IV. Fourth Cited Portion of Chen**

(Claim 1)

The Office action next cites Claim 1 of Chen to support the contention that Chen teaches “deducing a signal strength.” Claim 1 recites:

1. A method comprising the steps of:

- estimating the location of a mobile terminal using at least one forward-link geo-location technique without using any reverse-link geo-location techniques, this step being performed when there are enough base stations visible to the mobile terminal to be able to use the forward-link geo-location technique without using any reverse-link geo-location techniques to estimate the location; and
- estimating the location of the mobile terminal using at least one reverse-link geo-location technique when there are not enough base stations visible to the mobile terminal to be able to use the forward-link geo-location technique without using any reverse-link geo-location techniques to estimate the location;
- a forward-link geo-location technique being a geo-location technique that uses only information obtained from one or more forward-link signals to estimate the location of the mobile terminal; and
- a reverse-link geo-location technique being a geo-location technique that uses information obtained from at least one reverse-link signal to estimate the location of the mobile terminal.

Chen Claim 1.

The applicants respectfully submit that this portion of Chen recites up-link and down-link signals, but fails to mention anything about deducing a signal strength.

**V. Fifth Cited Portion of Chen**

(Claim 12)

The final cited portion of Chen recites:

12. A method comprising the steps of:

estimating the location of a mobile terminal using at least one forward-link geo-location technique without using any reverse-link geo-location techniques when there are at least a predetermined number of base stations visible to the mobile terminal; and

estimating the location of the mobile terminal using at least one reverse-link geo-location technique when there are fewer than the predetermined number of base stations visible to the mobile terminal;

a forward-link geo-location technique being a geo-location technique that uses only information obtained from one or more forward-link signals to estimate the location of the mobile terminal; and

the reverse-link geo-location technique being a geo-location technique that uses information obtained from at least one reverse-link signal to estimate the location of the mobile terminal.

Chen Claim 12.

The applicants respectfully submit that this portion of Chen recites up-link and down-link signals, but fails to mention anything about deducing a signal strength.

For this reason, the applicants respectfully submit that the rejection of claim 1 is traversed.

Because claims 2 through 7 depend on claim 1, the applicants respectfully submit that the rejection of them is also traversed.

Claim 10 recites:

**10.** A method comprising:

*deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on a signal-strength measurement of a second signal,  $R_U$ , at the location where said first signal is transmitted; and*

estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .

(emphasis supplied)

For the reasons given above with respect to claim 1, nowhere does Chen teach or suggest, alone or in combination with the other references, what claim 10 recites – namely *deducing a signal strength of a forward signal,  $R_D$ , at a wireless terminal based on a signal-strength measurement of an reverse signal,  $R_U$  at the location where the forward signal,  $R_D$ , is transmitted.*

For this reason, the applicants respectfully submit that the rejection of claim 10 is traversed.

Because claims 11 through 16 and 19 depend on claim 11, the applicants respectfully submit that the rejection of them is also traversed.

Claim 20 recites:

**20. (original)** A method comprising:

deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on an attenuation of a second signal,  $A_U$ , that is transmitted by said wireless terminal; and

estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .

(emphasis supplied)

For the reasons given above with respect to claim 1, nowhere does Chen teach or suggest, alone or in combination with the other references, what claim 20 recites – namely deducing a signal strength of a forward signal,  $R_D$ , at a wireless terminal based on an attenuation of a second signal,  $A_U$ , that is transmitted by said wireless terminal.

For this reason, the applicants respectfully submit that the rejection of claim 10 is traversed.

Because claims 21 through 26 depend on claim 20, the applicants respectfully submit that the rejection of them is also traversed.

**35 U.S.C. 103 Rejection of Claims 8, 9, 17, 18, 27 and 28**

Claims 8, 9, 17, 18, 27 and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over B.H. Chen et al., U.S. Patent 6,658,258 (hereinafter "Chen") in view of D.J. Dupray, U.S. Patent 6,249,252 (hereinafter "Dupray"). The applicants respectfully traverse the rejection.

Claim 1 recites:

**1.** A method comprising:

*deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on a transmit strength of a second signal,  $T_U$ , that is transmitted by said wireless terminal; and*

*estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .*

*(emphasis supplied)*

Because claims 8 and 9 depend on claim 1, and because Dupray fails to cure the deficiencies of Chen with respect to claim 1, the applicant respectfully submits that the rejection of claims 8 and 9 is traversed.

Claim 10 recites:

**10.** A method comprising:

*deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on a signal-strength measurement of a second signal,  $R_U$ , at the location where said first signal is transmitted; and*

*estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .*

*(emphasis supplied)*

Because claims 17 and 18 depend on claim 10, and because Dupray fails to cure the deficiencies of Chen with respect to claim 10, the applicant respectfully submits that the rejection of claims 17 and 18 is traversed.

Claim 20 recites:

**20. (original)** A method comprising:

*deducing a signal strength of a first signal,  $R_D$ , at a wireless terminal based on an attenuation of a second signal,  $A_U$ , that is transmitted by said wireless terminal; and*

*estimating the location of said wireless terminal based on said signal strength of said first signal,  $R_D$ .*

*(emphasis supplied)*

Because claims 27 and 28 depend on claim 20, and because Dupray fails to cure the deficiencies of Chen with respect to claim 20, the applicant respectfully submits that the rejection of claims 27 and 28 is traversed.



**Request for Reconsideration Pursuant to 37 C.F.R. 1.111**

Having responded to each and every ground for objection and rejection in the Office action mailed October 19, 2006, applicants request reconsideration of the instant application pursuant to 37 CFR 1.111 and request that the Examiner allow all of the pending claims and pass the application to issue.

Should there remain unresolved issues the applicant respectfully requests that Examiner telephone the applicants' attorney at 732-578-0103 x11 so that those issues can be resolved as quickly as possible.

Respectfully,  
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